The South Florida Ecosystem

To the casual visitor, South Florida may not seem very remarkable. From the highways, travelers see a landscape with very few features to distinguish it from anything they would have seen south of Virginia. Beyond the towers of the coastal cities, there are no vistas in South Florida, no high places from which to view the horizon. Indeed, South Florida is a land with subtle differences, which can only be appreciated by the travelers who leave the interstate to journey the quiet trails made of land and water.

The fortunate travelers who leave the highway become immersed in a world unlike any other. These travelers will discover the dry oak scrub of the Lake Wales Ridge, a mountain of white and yellow sand covered by plants and inhabited by animals adapted to a desert-like environment. Travelers discover the lush subtropical forests of the hardwood hammocks that are rich in plants from the West Indies and animals from the U.S. Travelers can discover vast, labyrinthine expanses of red, black, and white mangroves that are alive with white ibises, brown pelicans, wood storks, little blue herons, snowy egrets, snook, mullet, and red drum. Travelers can discover magnificent coral reefs and seagrass beds that are alive with multi-hued plants and animals. Travelers can discover the shadowed world of the towering, primeval cypress swamps where panthers and black bears still roam. Or, the more venturesome traveler can delight in the Everglades, an incomparable area, unique to all the world – – the "river of grass" that sustains prehistoric alligators and hundreds of migrating birds as it winds from Lake Okeechobee to Florida Bay.

South Florida is a region virtually unrivaled in diversity. Both ecologically and culturally, it straddles the Caribbean and temperate North America; yet it is threatened by a history of human alteration and a future of burgeoning human population. The first humans arrived in Florida about 12,000 years ago. When the first Europeans came in the 1500's, the Ais, Jaega, Calusa, and Tequesta inhabited South Florida. These peoples disappeared within 200 years, most succumbing to foreign diseases or warfare. During the 1700's and 1800's, some Creeks from Georgia and Alabama fled to South Florida and became recognized as the Seminole and Miccosukee tribes. Both tribes maintain their cultures today - particularly on the reservations - and are actively participating in the restoration of South Florida.

Until the late 1800's, few people lived in South Florida. Much of the area was marsh and swamp – – only the narrow strip of coastal ridge from Miami northward, and some of the islands, could be developed. Just before the turn of the 20th century, the total population of the 16 counties now included in the South Florida Water Management District was 32,000, of whom nearly 20,000 lived in Key West. Only 861 people lived in the area currently occupied by Miami, Ft. Lauderdale, and West Palm Beach (IWG 1994). Today in 1997, changes are dramatic. Half of Florida's 12 million people live in the South Florida Ecosystem: one of every four Floridians lives in Dade or Broward County. South Florida contains four of the top ten statistically, fastest-growing metropolitan areas in the U.S.: including Naples, Fort Pierce, Fort Myers-Cape Coral, and West Palm Beach-Boca Raton-Delray Beach (the first, third, fourth, and sixth, respectively) (Wright 1991). By 2005, Florida's population is projected to exceed 16 million, making it the fourth most populous state. About half of these people will live in South Florida, with one third of Florida's population in Dade, Broward, and Palm Beach Counties. On the west coast, Lee, Sarasota, and Collier Counties are expected to increase by more than 161,000, 102,000, and 87,000 people, respectively, by 2010.

The population of South Florida is supported by a diverse economy including tourism, agriculture, fisheries, mining, and manufacturing. About 1 million people annually visit the coral reefs in John Pennekamp Coral Reef State Park and the Florida Keys National Marine Sanctuary. Each year, the Everglades, Biscayne, and Big Cypress National Parks receive about 1.5 million visitors. In 1992, more than half of the tourists who came to Florida by air went to destinations in South Florida. All of the sugarcane grown for sugar in Florida is produced in Glades, Hendry, Martin, and Palm

Beach Counties. South Florida accounts for 88 percent of the state's orange production and 96 percent of the state's grapefruit production. More than a third of the fish and shellfish landed in Florida's coastal waters in 1992 were brought to shore in ports in South Florida (Shermyen 1993).

The dramatic population increase and economic expansion in South Florida has been accompanied by extensive land use alteration. In the past 50 years, more than 8 million acres of forest and wetland habitats have been cleared in Florida to accommodate this expanding human population (Cox et al. 1994). This habitat loss has been particularly significant in the South Florida Ecosystem, which contains four wetland landscapes that have been reduced to remnants: the cypress strands fringing the western side of the Atlantic Coastal Ridge; the pond-apple forest of the southern shore of Lake Okeechobee; the extensive sawgrass prairie that formed the Everglades; and the peripheral wetlands that bordered the sawgrass prairie (Davis et al. 1994). In South Florida, only 10 percent of the pine rockland communities that used to cover the east coast ridge, and less than 10 percent of the tropical hardwood hammocks remain. Similarly, the scrub communities of the Lake Wales Ridge have been highly fragmented and reduced to less than one percent of their former distribution (Muller et al. 1989).

All of this habitat loss and fragmentation has been accompanied by dramatic alteration of the natural processes. Manmade canals and levees crisscrossing South Florida have altered the natural hydrology that formed and maintained the wetlands and estuaries of South Florida. Many habitats do not receive necessary quantities of water to maintain their character, while the water they do receive may be overloaded with nitrates and phosphates from agricultural and urban run-off. Most of the fire dependent communities of the Lake Wales Ridge have been denied fire long enough to disrupt their ecology and endanger most of their endemic flora and fauna. Florida Bay has undergone a significant level of ecological degradation as evidenced by extensive algae blooms and seagrass die-off.

The U.S. Fish and Wildlife Service (Service) originally considered South Florida as a focus area in the Peninsular Florida Ecosystem. The 1993 signing of an Interagency Agreement on South Florida Ecosystem Restoration required the Service to significantly expand its involvement in resource issues in South Florida elevating the importance of the ecosystem to the Service. In February 1995, the Service separated the South Florida Ecosystem from the Peninsular Florida Ecosystem and created the South Florida Ecosystem Field Office to focus on resource issues in South Florida. The boundaries of the Service's South Florida Ecosystem originally followed the boundary of the South Florida Water Management District (SFWMD). However, this boundary would have split some counties between two Service offices, complicating programs for the public in those counties. As a result, if part of a county was included in the South Florida Ecosystem, the Service included the entire county. In addition, the Service included the entire Peace River drainage in the South Florida Ecosystem to ensure management consistency in the watershed.

The South Florida Ecosystem currently encompasses 16,641,534 acres (including 12,833,121 acres of land and 3,808,413 acres of water), covering the 19 southernmost Florida counties — slightly larger than the State of West Virginia (Figure 1.). The Ecosystem encompasses the Kissimmee River-Lake Okeechobee-Everglades drainage and the Peace River drainage, separated by the Central (Lake Wales) Ridge — the highest topographic feature of the Florida peninsula. The Ecosystem includes at least 11 major physiographic provinces: Big Cypress, Lake Okeechobee, Florida Bay, Biscayne Bay, Florida Reef Tract, nearshore coastal waters, Atlantic Coastal Ridge, Florida Keys, Immokalee Rise, Kissimmee River Valley and the Peace River. The latter drainage includes the Peace River, Myakka River, and Charlotte Harbor. Over the next 20 years, the South Florida Ecosystem will continue to face major natural resource allocation issues as its population triples in size. Regional planning will have to anticipate this level of population growth if the natural heritage and Federal trust resources of South Florida are to be conserved. This planning must determine how to allocate land and water to competing urban, agricultural, and natural resource users.

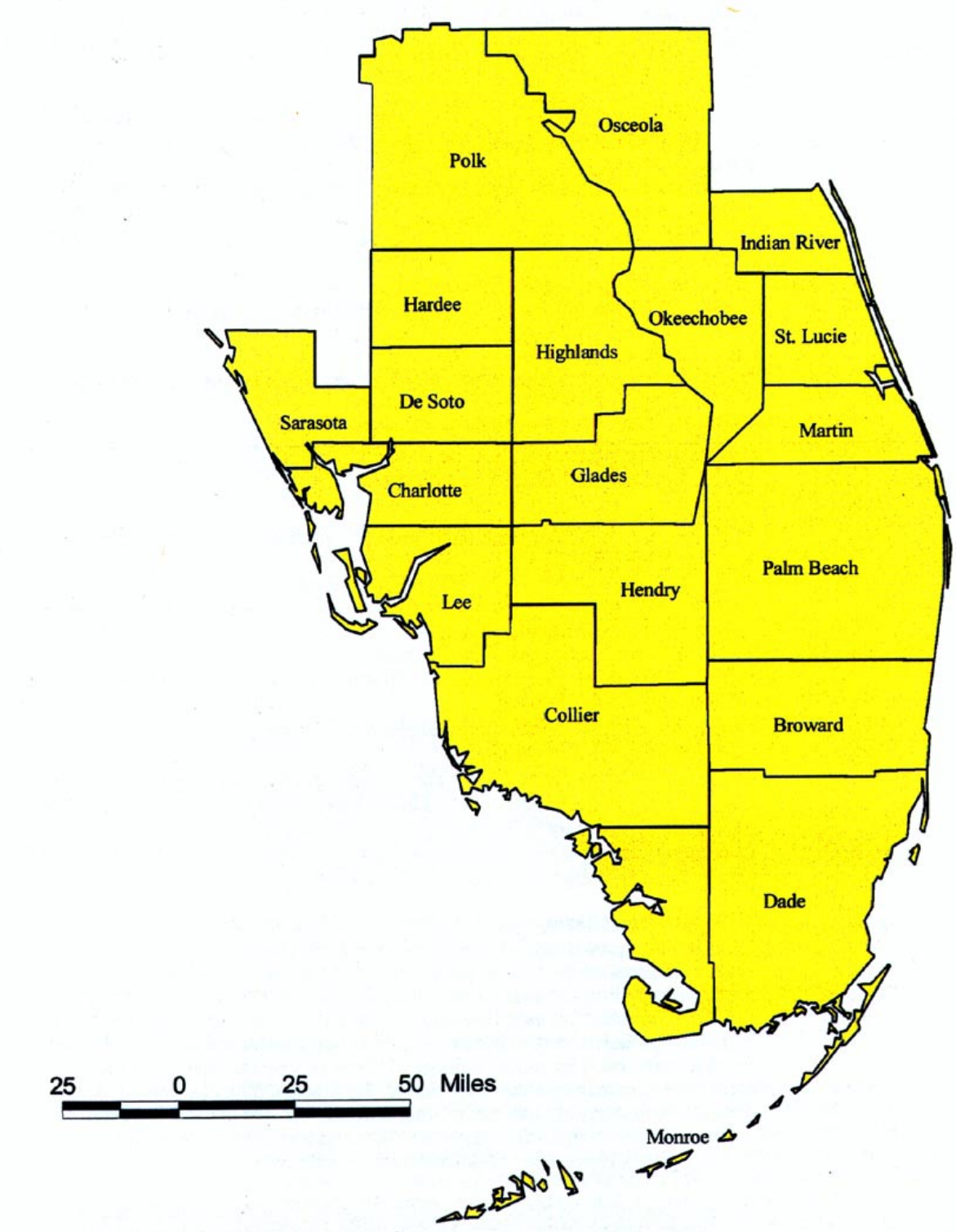

Figure 1. South Florida Ecosystem Counties.